

Section 2-5: Multiply and Divide Variable Expressions

By the end of this lesson, you should be able to answer:

- How are variable expressions simplified?
- How are variable expressions evaluated?

Where you might see this in the real world:

- Part-time job, weather, engineering, spreadsheets

Define the following terms:

1. Property of the opposite of a sum

2. Distributive property

When we are multiplying variable expressions, all we are doing is using the distributive property.

Example 1: Simplify.

a. $-2(n - 5)$

b. $.3(x + .7)$

c. $-(2ab + 9ac)$

d. $2x(4x + 7y)$

One way to look at dividing variable expressions is to divide **each term** in the numerator by the denominator. Another way to think about this is by making it a multiplication problem as such:

$$\frac{3 - x}{2} = \frac{1}{2} \bullet \frac{3 - x}{1} = \frac{1}{2}(3 - x) = \frac{3}{2} - \frac{1}{2}x = -\frac{1}{2}x + \frac{3}{2}$$

Example 2: Simplify. Practice both methods of division to see which one you prefer.

a. $\frac{6x + 3}{3}$

b. $\frac{10y - 5}{2}$

c. $\frac{1.6 - .8z}{-8}$

d. $\frac{9x + 5y}{7}$

Just as with working with variable expressions up to this point, we can also evaluate these expressions.

Example 3: Evaluate when $x = 2$ and $y = -4$.

a. $-3(x^2 + 1)$

b. $-4|6 - y|$

c. $\frac{|y - x|}{|x - y|}$

Problem Set:

"Nobody got anywhere in the world by simply being content." - Louis L'Amour